

Drawings

The Office Action did not indicate any objections to the drawings. Nonetheless, Applicant has noted some minor deficiencies in the previously submitted formal drawings, and is taking this opportunity to request various amendments to the drawings. A separate paper entitled Request for Approval to Amend the Drawings and Submission of Formal Drawings, is being filed contemporaneously herewith, and requests correction of these minor deficiencies.

Rejections Under 35 U.S.C. § 102

Claims 1-67 were rejected under 35 U.S.C. § 102(b) as allegedly being anticipated by U.S. Patent No. 5,737,210 (Barahia). These rejections are respectfully traversed.

Independent Claim 1 relates to a high speed generator including one or more rectifier module assemblies, and each of independent Claims 18, 35, 50, and 58 relate to rectifier circuit modules that may be used to rectify one phase of a multi-phase AC signal generated in the armature windings of a generator exciter. Each of these independent claims include a first diode circuit and a second diode circuit, each of which has an anode and a cathode, and each recites, *inter alia*, a conductive element electrically coupling together the cathode of said first diode circuit and the anode of said second diode circuit.

Barahia relates to a rectifier module assembly for a conventional three phase AC generator that is formed into two crescent shaped rectifier modules that are mounted to the side or end of the exciter rotor housing (Abstract; col. 4, ll. 38-41). The rectifier module assembly includes two rectifier modules, a positive rectifier module 12 and a negative rectifier module 14 (col. 3, ll. 29-31). It is submitted, however, that neither of these rectifier modules includes at least the above-noted feature of the independent claims 1, 18, 35, 50, and 58.

Specifically, the positive rectifier module 12 includes a crescent or half-cylindrical shaped mounting plate 9, and three rectifier diodes 13a-c mounted within the mounting plate 9 (col. 3, ll. 38-41). The anodes of the rectifier diodes 13a-c are electrically connected together, and the cathodes of the rectifier diodes 13a-c are connected to input terminals 16a, 17a, 18a, respectively, on the mounting plate 9 (col. 3, ll. 52-57). Similarly, the negative rectifier module 14 includes a crescent or half-cylindrical shaped mounting plate 11, having three rectifier diodes 15a-c mounted within (col. 3, l. 62 through col. 4, l. 4). In the negative rectifier module 14, the cathodes of the rectifier diodes 15a-c are electrically connected together, and the anodes of the rectifier diodes 15a-c are connected to input terminals 16a, 17a, 18a, respectively, on the mounting plate 11 (col. 4, ll. 4-11).

However, Barahia fails to disclose (or even remotely suggest) a conductive element electrically coupling together any of the anodes of the rectifier diodes 13a-c to any of the cathodes of the rectifier diodes 13a-c that are mounted in the positive rectifier module 12. Similarly, Barahia fails to disclose (or even remotely suggest) a conductive element electrically coupling together any of the anodes of the rectifier diodes 15a-c to any of the cathodes of the rectifier diodes 15a-c that are mounted in the negative rectifier module 12. Hence, Barahia fails to disclose at least the above-noted feature of independent Claims 1, 18, 35, 50, and 58.

As regards independent Claim 64, this claim relates to a modular rectifier circuit having a substantially flat base, and for rectifying one phase of a multiphase AC signal generated in a plurality of exciter armature windings wound on an exciter hub of a multi-pole high speed generator, and recites, *inter alia*, said base being dimensioned to removably mount within the exciter hub.

As was noted above, Barahia discloses that both the positive and negative rectifier modules 12 and 14 are screwed to the side or end of the exciter rotor housing or directly to the

exciter rotor laminations (col. 4, ll. 38-41). Hence, Barahia fails to disclose (or even remotely suggest) at least the above-noted feature of independent Claim 64. Namely, that either of the rectifier modules 12 or 14 is dimensioned to removably mount within the exciter hub.

Applicants wish to further note that each of the rectifier modules encompassed by each of independent Claims 1, 18, 35, 50, 58, and 64 is configured to provide full-wave rectifier functionality for a single phase of the AC signal supplied from the exciter rotor. Conversely, Barahia discloses a configuration in which each of the rectifier modules 12 and 14 receives an AC signal from all three phases of the exciter rotor AC windings, and that each rectifier module functions as a half-wave rectifier, to rectify only the positive or negative portion of each of the three phase AC signals.

At least in view of the above, reconsideration and withdrawal of the § 102 rejections is respectfully requested.

Independent Claims 1, 18, 35, 60, 58 and 64 are patentable over the citations of record. The dependent claims are also submitted to be patentable for the reasons given above with respect to the independent claims and because they recite features which are patentable in their own right. Individual consideration of the dependent claims is respectfully solicited.

The other art of record is also not understood to disclose or suggest the inventive concept of the present invention as defined by the claims.

### Conclusion

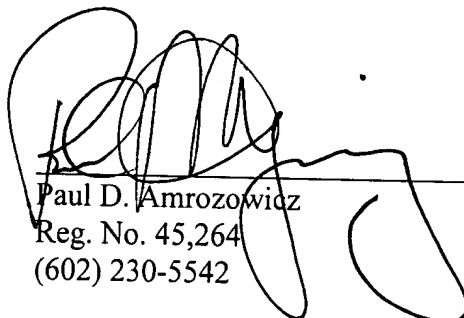
Applicant submits that the present application is in condition for allowance. Favorable reconsideration and withdrawal of the rejections set forth in the above-noted Office Action, and an early Notice of Allowance are requested.

If the Examiner has any comments or suggestions that could place this application in even better form, the Examiner is requested to telephone the undersigned attorney at the below-listed number.

Respectfully submitted,

Dated: November 21, 2002

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FOR:  
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Applicant: Raymond W. BORDEN et al.

Serial No.: 09/834,595

Filed: April 13, 2001

For: MULTI-POLE HIGH SPEED  
GENERATOR WITH A  
MODULAR RECTIFIER  
CIRCUIT

Group Art Unit: 2834

Examiner: T. Lam

Assistant Commissioner for Patents  
Box Non-Fee Amendment  
Washington, D.C. 20231

**VERSION WITH MARKINGS TO SHOW CHANGES**

The following clearly show the changes being made in the amendment filed contemporaneously herewith.

**IN THE SPECIFICATION:**

The specification is amended as follows:

Page 2, lines 22-25, is amended as follows:

--Hence, there is a need for a multi-pole high speed generator having a rectifier circuit that improves upon the drawbacks identified above. Namely, a rectifier circuit that is less likely to fail from varying radial centrifugal loads[;] and/or that is more reliable, and/or easier to repair and replace.--

Page 7, lines 19-30, is amended as follows:

--A resistive element 124 is connected between the first 106 and second 108 conductive circuit runs. Thus, the resistive element 124, as will be described and depicted more explicitly herein below, is electrically connected in parallel with each of the first 118 and second 120 diode circuits, and provides electrical protection for each. The resistive element 124, in a preferred embodiment, has a resistance of 300 ohms and a power rating of 100 watts, though these ratings may be changed to meet the specific requirements of the generator. Additionally, the resistive element 124 may be one of many resistor designs known in the art including, but not limited to, ceramic, wire-wound, and semiconductor resistors. However, the resistive element 124 is preferably a flat, thin-film resistor[, having]. This type of resistor is small and, because it can be formed into a flat orientation, the centrifugal load is distributed evenly across the resistor body.--

Page 8, lines 10-17, is amended as follows

--Preferably, the diodes 118-1, 118-2, . . . 118-n, 120-1, 120-2, . . . 120-n, the first and second DC output terminals 114, 116, and the AC input terminal 112, are coupled to the rectifier module assembly 100 by a brazing process. An integral brazed module provides improved structural integrity over other known methods of component connection. It will be appreciated that brazing is only exemplary of the preferred embodiment and that other known connection processes, such as soldering, or the use of conductive epoxies, are also encompassed by the present invention.--

Page 9, lines 16-23, is amended as follows:

--For completeness of understanding, a perspective view of a preferred embodiment of a multi-pole high speed generator 900 into which the rectifier circuit module assembly 100 is

mounted, is depicted in FIG. 9. Additionally, a cross section view, depicting the internal structure of the generator 900, is illustrated in FIG. 10. As depicted therein, the rotor assembly 400 is surrounded by a stationary stator assembly 450. Also depicted is the exciter armature 408 and hub 410, into which one or more of the rectifier module assemblies 100 are removably mounted.--